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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,244	11/20/2003	Scott R. Brown	47181-00264USPT	9924
23569	7590	11/09/2005		
SQUARE D COMPANY LEGAL DEPARTMENT IP SECTION 1415 SOUTH ROSELLE ROAD PALATINE, IL 60067			EXAMINER DANG, ROBERT TRONG	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

**Office Action Summary**

Application No.

10/718,244

Applicant(s)

BROWN ET AL.

Examiner

Robert T. Dang

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-26 is/are allowed.
- 6) ☒ Claim(s) 1-3, 14-18 and 21 is/are rejected.
- 7) ☒ Claim(s) 4-13 and 19-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/20/2003</u>  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 14-18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haun (6259996) in view of Sircom (3879639).

As to claims 1 and 3, 14-17 Haun discloses in figure 1, a microcontroller-based (40) system for detecting ground-fault and grounded-neutral conditions in an electrical power distribution system having line (14) and neutral (18) conductors, comprising a sensor (20) producing an output signal responsive to current flow in both the line and neutral conductors of the electrical power distribution system, a circuit interrupter (47) for interrupting current flow in said power distribution system (12) in response to a trip signal, a microcontroller (40) receiving said sensor output signal and initiating the generation of a trip signal upon detection of a ground-fault or a grounded-neutral condition in said power distribution system, (12) said microcontroller (40) being programmed to use said sensor output signal to detect ground-fault conditions during spaced time intervals (see col. 3, lines 35-46). However, the reference does not explicitly disclose a sensor for detecting ground-neutral conditions by estimating the impedance of the neutral to ground connection. Sircom, teaches a device that utilizes a

ground-neutral fault detector (22) that monitors the impedance of the neutral to ground connection (see col. 8, lines 31-35) and outputs a trip signal (18c) when a ground-neutral condition occurs (see col. 1, lines 54-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device and add a ground-neutral detector in order to economically provide from both neutral to ground and line to ground protection.

As to claims 2 and 18, Haun discloses the system of claim 1 wherein said microcontroller is programmed to detect ground-fault conditions by comparing the magnitude of said sensor output signal with a predetermined ground-fault threshold value (see col. 8, lines 65-67).

As to claims 14 and 21, Haun, discloses in figure 1, the system of claim 1 wherein said sensor has a single transformer (20, CT meaning a current transformer) for sensing current in both said line and neutral conductors.

***Allowable Subject Matter***

Claims 22-26 are allowed

Claims 4-13 and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

For claims 4-13, the prior art of record does not disclose or suggest in the claimed combination: a system wherein said microcontroller is programmed to initiate a

ping signal in each of said intervening intervals to produce damped oscillation in said sensor. For claims 19-20, the prior art of record does not disclose or suggest in the claimed combination: wherein said microcontroller is programmed to estimate the slope of leading or tail edge of half cycle of damped oscillation following the initiation of said ping signal to determine grounded-neutral condition.

The art of record does not disclose or suggest the above claimed features, nor would it be obvious to modify the art of record so as to include either of the above limitations.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Dang whose telephone number is 571-272-8326. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached at 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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KARL D. EASTHOM  
PRIMARY EXAMINER